

REMARKS

Favorable reconsideration and allowance of the present application are respectfully requested in view of the following remarks. Claims 1-21 are pending. Claims 1 and 8 are independent.

OBJECTION TO THE SPECIFICATION

In the January 18th Office Action, the Examiner objects to the disclosure for informalities. *See January 18th Office Action, item 1.*

Regarding the paragraph on page 12, the paragraph has been amended more clearly indicate the information presented in Figure 3.

Regarding page 17, lines 1-2, the paragraph has been amended to clarify the relationship between what is transmitted and the signal lines as requested by the Examiner.

Finally, regarding page 14, it is noted that the entirety of page 14 was requested to be deleted in the Reply filed on September 29, 2004. As originally filed, page 14 was an exact replica of page 13. Therefore, no information was lost as result of the deletion.

Applicant respectfully requests that the objections to the specification be withdrawn.

DRAWINGS

In the January 18th Office Action, the Examiner alleges that the drawings do not show every feature of the invention specified in the claims. *See January 18th Office Action, item 2.* More specifically, the Examiner alleges that the features “the first circuit configured to subdivide a payload portion of at least one SONET data frames” and a “second circuit configured to assign a protection mechanism corresponding to a SONET protection level to each logical” are not shown. It is noted that the features are from independent claim 8.

Regarding the first circuit, it should be noted that at least the optical card 502 as illustrated in Figure 5 of the present application shows the feature of the first circuit as claimed. Figure 5 illustrates an embodiment of a SONET network element (or system), which includes the optical card 502. The optical card 502 transmits/receives SONET signals to/from other nodes. The optical card 502 also transmits/receives a number of bi-directional STS signals 504 to/from the control card 520.

The Examiner’s attention is directed to Figure 4, which illustrates an exemplary SONET frame according to an embodiment of the present invention. As illustrated, the SONET frame includes the transport overhead 402 followed

by a payload including a number of STS frames. The STS frames are in blocks 404, 406, and 408 where each block is considered to be a logical channel.

Referring back to Figure 5, it is clear that the optical card 502 is capable of receiving SONET signals from the network and transmitting a plurality of STS signals to the control card 520. The SONET signals received by the optical card 502 include at least the SONET frames and the corresponding payload. As demonstrated above, the STS signals of the payload are viewed as logical channels in an embodiment. Then it is clear that the optical card 502 subdivides the payload portion of at least one SONET data frame into two or more logical channels as featured in claim 8.

Regarding the second circuit, at least the control card 520 illustrated in Figure 5 shows the feature of the second circuit as claimed. For example, in lines 3 and 4 of page 18 of the application as originally submitted, it is stated "In one embodiment of the present invention, the level of protection provided for each logical channel of STS frames is programmed into the control card 520." For example, the cross connect 508 may include such protection mechanism. Thus, it is clear that the second circuit as claimed is shown.

§ 112, 1st PARAGRAPH REJECTION

Claims 18-20 stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement. See *January 18th Office Action, item 3*. More specifically, the Examiner alleges that the feature of “storing data from two or more logical channels within a single one of the SONET data frame” as recited in claims 18 and 20 is not described in the application as originally filed. The Examiner further alleges that the feature of “one or more logical channels of the SONET layer are transmitted over a common carrier channel” as recited in claims 19 and 21 is not described in the application as originally filed. Applicant respectfully traverses.

Regarding claims 19 and 21, the claims have been amended to recite “common fiber channel” to address the issue raised.

Regarding claims 18 and 20, it has been demonstrated above that the SONET frame includes multiple logical channels in an embodiment of the invention. Thus, the first circuit implementing the embodiment is capable of storing multiple channels within a single SONET data frame as claimed and the claims are not new matter.

Applicant respectfully requests that the rejection of claims 18-21 based on Section 112, 1st paragraph be withdrawn.

§ 102 REJECTION – CHEN

Claims 1-14, 19, and 21 stand rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Chen et al. (USPN 6,501,758). *See January 18th Office Action, item 4.* Applicant respectfully traverses.

Applicant maintains all traversal arguments presented in the previously filed replies of July 24, 2003, February 23, 2004, and September 29, 2004.

Contrary to the Examiner's allegation, Chen cannot be relied upon to teach or suggest all features of the claims. For example, independent claims 1 and 8 recite, in part, "subdividing a payload portion of at least one of the SONET data frames ... into two or more logical channels."

In the January 18th Office Action, the Examiner alleges that Chen discloses a SONET ring system in which STS level signals are used for efficient and effective communication of ATM and TDM traffic over a common fiber ring. *See January 18th Office Action, item 4, 2nd paragraph, lines 1-4.* The Examiner also alleges that the hybrid ATM/TDM transport over a common fiber channel can be interpreted on the above-recited limitation because the data to be transmitted must include the presence of both ATM and TDM traffic on the same SONET frame. *See January 18th Office Action, page 11, line 20 – page 12, line 4.*

While Applicant does not necessarily agree with this allegation, Applicant will proceed under this assumption for the sake of argument. Given this allegation, then to anticipate the feature of subdividing a payload portion of at least one of the SONET data frames comprising a SONET layer into two or more logical channels as claimed, then it must be shown that a payload of a SONET frame as disclosed in Chen must include both ATM and TDM signals. As will be demonstrated below, Chen cannot be relied upon to teach or suggest this feature.

The following is noted with regard to Chen. To the extent that payload is discussed at all, Chen strongly indicates that each payload carries only one type of information – either ATM or TDM. In other words, both types **cannot be part of a single payload.**

Particular methods used to communicate TDM and ATM information over a common fiber ring in Chen is discussed with reference to Figures 4a-4c. See *column 13, lines 7-9*. As shown in Figure 4a, a first STM signal comprising TDM information is constructed in step 630 and a second STM signal comprising ATM information is constructed in step 640. Both the first and second STM signals are then transmitted over a common fiber ring.

The details of constructing the first and second STM signals are discussed with references to Figures 4b and 4c, which are two different

embodiments of carrying out steps 630 and 640. *See also column 13, lines 23-37.*

In the embodiment of Figure 4b, Chen discloses that the incoming signals to be transported over the fiber ring are separated based on whether the signals are TDM or ATM. Based on the type of signals, they are separated and processed. *Steps 710-755; column 13, line 49 – column 14, line 7.*

Then Chen states “Switched transport signals containing TDM information are mapped into a first synchronous envelope at step 760.” *See column 14, lines 8-10.* Chen goes on to state “Switched transport signals containing ATM cells ... are mapped into a second synchronous envelope at step 765.” *See column 14, lines 12-14.* In other words, the TDM and ATM information are carried in separate payload envelopes and thus **in separate SONET frames.**

Clearly, the embodiment as shown in Figure 4b cannot teach or suggest the feature of subdividing a payload portion of at least one of the SONET data frames into two or more logical channels as recited in the independent claims. Indeed, the embodiment as shown in Figure 4b of Chen actually teaches away from this feature.

The embodiment of Figure 4c also cannot teach or suggest this feature. In this embodiment, the TDM and the ATM signals are separated and

processed. *Steps 810-835 and 845-860.* Then Chen states, "Switching manager 18 ... maps the switched transport signals containing TDM information into a first outgoing STM signal at step 840." *See column 14, lines 41-45.* Chen also states, "Signal manager 18 receives switched transport signals containing ATM cells and maps those signals into a second outgoing STM signal at step 865." *See column 14, lines 59-62.*

Chen further states, "Node 14 then transmits the first outgoing STM signal containing TDM information over the first STS path at step 880, and transmits the second outgoing STM signal containing the ATM cells over the second STS path at step 885." *See column 14, line 65 – column 15, line 2.* In other words, the TDM and ATM information are carried in **separate paths**. This clearly implies that the TDM and ATM information cannot be part of a single payload and thus **cannot be a part of one SONET frame**.

Thus, the embodiment as shown in Figure 4c also cannot teach or suggest the feature of subdividing a payload portion of at least one of the SONET data frames into two or more logical channels as recited in the independent claims. Indeed, this embodiment teaches away as well.

Both disclosed embodiments of Chen cannot be relied upon to teach or suggest the above-recited feature of the independent claims 1 and 8. Chen is

otherwise entirely silent regarding the payload of the SONET frames. Chen in its entirety cannot be relied upon, and indeed teaches away.

Therefore, independent claims 1 and 8, for at least the reasons stated above, are distinguishable over Chen. Claims 2-7, 9-14, 19, and 21 depend from independent claims 1 or 8 directly or indirectly. Therefore, for at least the reasons stated with respect to claims 1 and 8, these dependent claims are also distinguishable over Chen.

Applicant respectfully requests that the rejection of claims 1-14, 19, and 21 based on Chen be withdrawn.

REPLY TO EXAMINER'S "RESPONSE TO ARGUMENTS"

In the January 18th Office Action, the Examiner indicated that the logical channels as claimed is nothing more than a number of STS frames grouped together for carrying traffic. *See January 18th Office Action, page 11, lines 15-19.* The implication appears to be that any showing of grouping together a number of STS frames to carry a particular type of data is enough to anticipate the features of the claims.

It should be noted however, that independent claims 1 and 8 recite "subdividing a payload portion of at least one of the SONET data frames ... into two or more logical channels." Thus, the logical channels are part of a

particular SONET frame. To make this even more clear, the independent claims have been amended to explicitly define the composition of a SONET data frame to include "a plurality of logical channels." Thus, merely grouping of STS frames to carry either TDM or ATM traffic is not enough to anticipate the claims.

The Examiner also states that the hybrid ATM/TDM transport over a common fiber channel can be read on the above-recited feature because for the data to be transmitted over the SONET ring, the data must be loaded onto one or more STS frames that make up a single SONET frame. *See January 18th Office Action, page 11, line 20 – page 12, line 4.*

The Examiner's logic appears to be the following. For a given SONET ring, there can be only one SONET frame. Because Chen discloses transporting both ATM and TDM traffic on the same SONET ring, they must be part of the same SONET frame.

Clearly, there are other ways that different types of traffic can be communicated over a common physical fiber. Chen demonstrates this amply. Chen demonstrates that one SONET frame can be generated to carry ATM traffic and another SONET frame can be generated to carry TDM traffic. Thus, the Examiner's reasoning fails.

The Examiner states that the hybrid ATM/TDM teachings of Chen require the subdividing of the SONET frame into different groups of STS for ATM and TDM traffic. *See January 18th Office Action, page 12, lines 4-6.* In other words, the Examiner alleges that a single SONET frame includes ATM-based STS signals as well as TDM-based STS signals.

Applicant respectfully disagrees. As demonstrated above, Chen actually requires providing an entirely separate SONET frame to carry the TDM traffic from the ATM traffic.

The Examiner also states that the Applicant lacks description of how individual loads are handled between nodes, and that such lack of description cannot stand as reason for making the basis of comparison to the individual payloads of Chen. *See January 18th Office Action, page 12, line 21 – page 13, line 1.*

It should be noted that the claims require that a payload portion of a SONET frame be subdivided into two or more logical channels. To this end, specification and the claims clearly define that a SONET frame includes a plurality of logical channels. Thus, it is entirely acceptable to compare the SONET frame as claimed with the composition of the SONET frame as disclosed in Chen.

To the extent that the Examiner considers ATM traffic as being one logical channel and TDM as being another logical channel, then it must be demonstrated that Chen teaches or suggest the TDM and ATM information being grouped in a single SONET frame. Clearly, Chen cannot be relied upon as demonstrated above.

Yet further, the Examiner states that Chen gave details of how different traffic (TDM, ATM) within the same SONET frame payload is transmitted over the fiber ring at the physical layer and that Chen's details is a step that provides more details over the Applicant's invention and should not serve as grounds to disqualify Chen. *See January 18th Office Action, page 13, lines 14-18.*

Apparently, the Examiner is admitting that Chen discloses separating the TDM and ATM signals into different paths and into different payload envelops. However, the Examiner is implying that it doesn't matter since the description in Chen is about the physical layer, which is a different layer than the SONET frames as described and claimed in the application.

If the Examiner is admitting that the disclosure of Chen describes a layer that is different from the invention as claimed, then the claims cannot be rejected based on Chen. On the other hand, if Chen is describing the same layer as the claims, then the claims are not anticipated or obvious since Chen

clearly discloses generating separate frames for each type of data traffic (TDM or ATM) where as the claims require a SONET frame as including two or more logical channels.

Based on at least the reasons stated above, Chen cannot be relied upon to anticipate or render obvious any of the claims.

§ 103 REJECTION – CHEN, BISSON

Claim 15 stands rejected under 35 U.S.C. §103(a) over Chen in view of Bisson et al. (USPN 6,349,092). *See January 18th Office Action, item 5.* Applicant respectfully traverses.

Applicant maintains all traversal arguments presented in the previously filed replies of July 24, 2003, February 23, 2004, and September 29, 2004 with respect to claim 15.

In addition, it has been shown above that Chen may not be relied upon to teach or suggest all features of independent claim 8. Bisson has not been, and indeed cannot be, relied upon to correct all deficiencies of Chen. Therefore, claim 8 is distinguishable over Chen and Bisson. For at least due to its dependency from claim 8, claim 15 is also distinguishable over Chen and Bisson.

Applicant respectfully requests that the rejection of claim 15 based on Chen and Bisson be withdrawn.

§ 103 REJECTION – CHEN

Claim 16 and 17 stand rejected under 35 U.S.C. §103(a) over Chen. See *January 18th Office Action, item 6*. Applicant respectfully traverses.

Applicant maintains all traversal arguments presented in the previously filed replies of July 24, 2003, February 23, 2004, and September 29, 2004 with respect to claims 16 and 17.

In addition, it has been shown above that Chen may not be relied upon to teach or suggest all features of independent claims 1 and 8. For at least due to their dependencies from claims 1 and 8, respectively, claims 16 and 17 are also distinguishable over Chen.

Applicant respectfully requests that the rejection of claims 16 and 17 based on Chen be withdrawn.

§ 103 REJECTION – CHEN, NEUENDORFF

Claim 18 and 20 stand rejected under 35 U.S.C. §103(a) over Chen in view of Neuendorff et al. (USPN 6,657,969). See *January 18th Office Action, item 7*. Applicant respectfully traverses.

It has been shown above that Chen may not be relied upon to teach or suggest all features of independent claims 1 and 8. Neuendorff has not been, and indeed cannot be, relied upon to correct all deficiencies of Chen. Therefore, claims 1 and 8 are distinguishable over Chen and Neuendorff. For at least due to its dependency from claims 1 and 8, claims 18 - 20 are also distinguishable over Chen and Bisson.

Applicant respectfully requests that the rejection of claims 18 - 20 based on Chen and Neuendorff be withdrawn.

CONCLUSION

All objections and rejections raised in the Office Action having been addressed, it is respectfully submitted that the present application is in condition for allowance. Should there be any outstanding matters that need to be resolved, the Examiner is respectfully requested to contact Hyung Sohn (Reg. No. 44,346), to conduct an interview in an effort to expedite prosecution in connection with the present application.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), the Applicant respectfully petitions for a one (1) month extension of time for filing a response in connection with the present application and the required fee of \$120 is being filed concurrently herewith.

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If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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